Remarks/Arguments:

Claims 1-3 and 5-18 are presently pending. Claims 2, 5-7, 9, 11, 13, 15, and 16 have been amended. Reconsideration is respectfully requested in view of the above amendments and the following remarks.

Claim Rejections under 35 U.S.C. § 112

Claims 2, 5, 6, 7-10, and 13-18 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for including the term "the wide magnetic path" without antecedent basis. Applicants herein amend the claims to remove this term. Accordingly, this rejection is obviated.

Claim Rejections Under 35 U.S.C. § 102

Claims 1, 7, 8, 11, 12, 16, and 18 stand rejected under 35 U.S.C. § 102(b) as anticipated by Fumitoshi (JP 2001-073948). It is respectfully submitted, however, that the claims are patentable over this reference for the reasons set forth below.

Applicants' invention, as recited by claim 1, includes a feature which is not disclosed, taught, or suggested by the cited art, namely:

> the rotor core defines a hollow bore extending from a first axial end of the rotor core ... and
>
> the rotor core includes a built-in permanent magnet, an axial length of the permanent magnet being less than an axial length of the rotor core, the permanent magnet being positioned in the rotor core so that it extends from a second axial end of the rotor core opposite the hollow bore.

This means a hollow bore extends from one end of the rotor core. A permanent magnet is axially shorter than the rotor core, and is positioned so that it extends from the end of the rotor core opposite the bore.

The Office Action asserts that Fumitoshi discloses "an axial length of the permanent magnet being less than an axial length of the rotor core (21; figure 8), the permanent magnet being positioned in the rotor core so that it extends from a second axial end of the rotor core opposite the hollow bore." Applicants respectfully disagree.

Fumitoshi is directed to a compressor. As illustrated in FIG. 1, Fumitoshi discloses a compressor including an electric motor 53. Motor 53 includes a rotor 55 having a rotor iron core 68. Rotor iron core 68 includes permanent magnets 70a and a bore part 69 for receiving a bearing part 57. See Fumitoshi at the abstract; and FIG. 1.

FIG. 8 of Fumitoshi discloses an alternative rotor 17. Rotor 17 includes an element 18 that appears to correspond to rotor iron core 68 of rotor 55; an element 21 that appears to correspond to permanent magnets 70a of rotor 55; and an element 20 that appears to correspond to bore part 69 of rotor 55. Fumitoshi fails to disclose, teach, or suggest that permanent magnets 21 extend from an axial end of rotor iron core 18 that is opposite from the bore part 20. To the contrary, Fumitoshi depicts permanent magnets 21 extending from the axial end of rotor iron core 18 that includes the bore part 20. This is different from the claimed invention, which requires that the permanent magnet be positioned in the rotor core so that it extends from an end of the rotor core opposite the hollow bore.

Accordingly, Applicants respectfully submit that Fumitoshi fails to disclose, teach, or suggest "the rotor core includes a built-in permanent magnet, an axial length of the permanent magnet being less than an axial length of the rotor core, the permanent magnet being positioned in the rotor core so that it extends from a second axial end of the rotor core opposite the hollow bore," as recited in claim 1.

It is <u>because</u> Applicants include the features of a built-in permanent magnet positioned in the rotor core so that it extends from an end of the rotor core opposite the hollow bore that the following advantages are achieved. This structure allows the overlap between the permanent magnet, which extends from the bottom end, and the hollow bore, which extends from the top end, to be minimized. "In this configuration, the magnetic flux by permanent magnet 205 occurs in the large part having no bore 212 in rotor core 203, so that a magnetic path wider than the size of permanent magnet 205 can be formed, the material cost of permanent magnet 205 can be reduced without largely reducing the effective magnetic flux amount of permanent magnet 205. Therefore, the efficiency is increased and simultaneously the cost is reduced." See Applicants' specification at page 15, lines 7-12.

In contrast, as described above, the configuration disclosed by Fumitoshi does not consider minimizing the overlap between the magnet and the hollow bore.

Therefore, for the reasons set forth above, claim 1 is patentable over the cited art.

Claims 7, 8, 11, 12, 16, and 18 include all features of claim 1 from which they depend. Thus, claims 7, 8, 11, 12, 16, and 18 are also patentable over the cited art for the reasons set forth above.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-3 and 5-18 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kojima et al. (US Pub. 2004/0191094) in view of Sasaki et al. (US Pat. 6,727,627). It is respectfully submitted, however, that the claims are patentable over these references for the reasons set forth below.

Kojima is directed to an electric compressor which includes a motor. As illustrated in FIG. 3, for example, Kojima discloses a motor unit 303 including a rotor 314. Rotor 314 includes a rotor core 315. A hollow bore 306 extends from the top axial end of rotor core 315. Rotor 314 further includes a permanent magnet 315a that is axially shorter than rotor core 315. Permanent magnet 315a is positioned so that it is axially centered in rotor core 315. See Kojima at paragraph [0052] and FIG. 3.

Kojima fails to disclose, teach, or suggest permanent magnet 315a extending from an end of rotor 314 opposite the hollow bore 306. See Kojima at FIG. 3. This is different from claim 1, which requires that the permanent magnet be positioned in the rotor core so that it extends from an end of the rotor core opposite the hollow bore. To the contrary, Kojima teaches positioning a magnet that is shorter than the rotor core in the center of the rotor core.

Sasaki fails to make up for the deficiencies of Kojima with respect to claim 1. Sasaki is directed to a permanent magnet synchronous motor. As shown in FIG. 18, for example, the motor includes a rotor 41 including a rotor core 42 and a permanent magnet 45 in the rotor core 42. See Sasaki at column 19, lines 10-35, and FIG. 18.

The Office Action asserts that Sasaki teaches "an axial length of the permanent magnet (45) being less than the axial length of the rotor core (42)." However, as described above, Kojima already discloses this feature. See Kojima at FIG. 3. Thus, this teaching provides nothing in addition to what is disclosed in Kojima.

Sasaki fails to disclose, teach, or suggest rotor core 42 including a hollow bore. Thus, Sasaki does not provide any teaching for positioning magnet 45 relative to a bore. Neither

Kojima nor Sasaki discloses, teaches, or suggests positioning a magnet that is shorter than the rotor core such that it extends from an end of the rotor core opposite the bore.

Accordingly, Applicants respectfully submit that Kojima in view of Sasaki fails to disclose, teach, or suggest "the rotor core includes a built-in permanent magnet, an axial length of the permanent magnet being less than an axial length of the rotor core, the permanent magnet being positioned in the rotor core so that it extends from a second axial end of the rotor core opposite the hollow bore," as recited in claim 1.

As set forth above, it is because Applicants include the features of a built-in permanent magnet positioned in the rotor core so that it extends from an end of the rotor core opposite the hollow bore that the following advantages are achieved. This structure allows the overlap between the permanent magnet, which extends from the bottom end, and the hollow bore, which extends from the top end, to be minimized. "In this configuration, the magnetic flux by permanent magnet 205 occurs in the large part having no bore 212 in rotor core 203, so that a magnetic path wider than the size of permanent magnet 205 can be formed, the material cost of permanent magnet 205 can be reduced without largely reducing the effective magnetic flux amount of permanent magnet 205. Therefore, the efficiency is increased and simultaneously the cost is reduced." See Applicants' specification at page 15, lines 7-12.

In contrast, as described above, the configuration disclosed by Kojima does not consider minimizing the overlap between the magnet and the hollow bore.

Accordingly, for the reasons set forth above, claim 1 is patentable over the cited art.

Claims 2, 3 and 5-18 include all features of claim 1 from which they depend. Thus, claims 2, 3 and 5-18 are also patentable over the cited art for the reasons set forth above.

Applicants respectfully assert that the above-identified application is in condition for allowance, which action is respectfully requested.

Respectfully submitted,

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